Shoulder dystocia (SD) is one of the most vexing problems in obstetrics. It complicates about 1% of deliveries, so many of us won’t see it often enough to feel confident in our ability to manage it in an appropriate manner. SD occurs most commonly when one of the fetal shoulders becomes stuck on the symphysis pubis. A shoulder can also become lodged behind the sacrum, or rarely, behind both the symphysis pubis and sacrum. The causes of SD are not clear, but fortunately, the appropriate management is the same, no matter where the obstruction is.

The established risk factors for SD are fetal macrosomia, maternal diabetes, maternal obesity, and/or an operative delivery. Even when all of these factors are present, SD is still uncommon, and at least half of SD occurs in the absence of any risk factor.

Fetal macrosomia is more commonly found in association with a baby that is thought to be excessively large, so it makes sense to think that such a baby ought to be at risk for SD. It has been shown, however, that nearly 90% of SD occurs in fetuses that weigh less than 4000Gm (8.8 lbs). Similarly, it is clear that estimating fetal weight is an inexact science, whether done clinically, with Leopold’s Maneuvers, or with ultrasound during labor. The estimation of fetal macrosomia is inexact so often that such a diagnosis is probably not precise enough to warrant either induction of labor before term (to get a smaller baby) or a delivery by prophylactic cesarean section.

Diabetic women may have a macrosomic infant whose shoulders are larger than a baby of similar weight in a non-diabetic woman. This apparently occurs because excess insulin is a fetal growth factor. Only 5% of obese women have macrosomic babies. Similarly, the incidence of macrosomic babies in post-dates pregnancies is increased, but this is only by about 15% over those that are not post-dates. There is little evidence that operative vaginal delivery causes SD, but those protracted labors in which an operative vaginal delivery is performed are also more likely to end up with SD.

Just because estimating fetal weight is inexact does not mean that doctors and nurses should ignore the size of the fetus in a laboring mother.
Each woman entering the hospital in labor should have some estimation of fetal weight made. This should be entered in the chart, because if it is not, there will be no evidence that you did not ignore it. No one can fault you for missing the exact weight of the fetus; everyone can fault you for not even trying to anticipate a macrosomic baby. If the admitting nurse decides the baby may be too large, the physician should be notified. If the doctor agrees, a discussion should be held with the patient and her family, about the likelihood of SD and what that means.

When the head of the baby is delivered and then “snaps back” against the perineum and does not come out any further with your usual pressure on the side of the baby’s head, the diagnosis of SD can be made. It important to make this diagnosis quickly so something can be done. The cord is being compressed against the pelvic walls. If delivery doesn’t occur within 10-15 minutes, the baby may die of asphyxia.

How is SD treated? There is a series of maneuvers that help dislodge the shoulders and allow delivery. The first of these is the McRoberts maneuver, in which the mother’s knees are flexed and elevated so that they are against her chest. This position alters the relationship between the bones of the pelvis (which are moved) and the impacted shoulders (which do not move). Suprapubic pressure is often used to help dislodge the anterior shoulder while McRoberts maneuver is being done. Neither of these done separately or together is likely to increase whatever trauma the fetus may have already suffered.

The next easiest maneuver is the Woods (“screw”) maneuver, in which the hand of the operator is inserted into the posterior vagina and pushed into the pelvis far enough to feel the back and shoulders of the baby. With the palm flat against the shoulders, the back is rotated anteriorly, so that the anterior shoulder is dislodged from the pubis. If the impaction occurs with the posterior shoulder against the sacral promontory, the same maneuver will work. The baby usually delivers as soon as you withdraw the hand after successful rotation. Should Woods maneuver fail to rotate the baby, the hand should be advanced further into the pelvis until you can feel the posterior fetal arm and hand. Simply grasping the lower arm and hand and pulling them over the infant’s face and out of the vagina should disimpact the shoulders no matter where they are stuck. This maneuver (“Going for the posterior arm”) is often followed by fracture of the arm or clavicle. In the vast majority of cases these fractures heal promptly and without permanent injury.

The ACOG has prepared a video tape demonstrating each of these maneuvers.* Since SD is uncommon in most hospitals, this tape should be reviewed by the OB staff every year. It is important for staff to function as a team when managing and successfully resolving an SD. Procedures should be developed and periodic drills including ALL staff involved in potential situations of SD can be conducted to rehearse the roles of team members.

SD by itself is disconcerting enough because of the threat of fetal death. With the advent of the disimpaction maneuvers, death is rare. But SD may be accompanied by a disruption of the fetal brachial plexus, which may leave it permanently withered and unusable (“Erb’s Palsy”). It turns out that about 15% of deliveries in mothers with one or more of the risk factors for SD actually have SD. Of these, very few die, and about 15% of the survivors will develop Erb’s Palsy. Of major importance is that only about 15% of those found to have a brachial plexus injury in the nursery will still have Erb’s Palsy when they enter school. These are considered permanent.

Putting these numbers together is what the doctor should discuss with the patient at risk and her family: 15% will have SD; 15% of those will have a brachial plexus injury and 15% of those will be permanent. \((0.15 \times 0.15 \times 0.15 = 0.000375, \text{ or } 3-4 \text{ per thousand SD babies will have a permanent brachial plexus injury. Thus, one would have to do 996 Cesarean deliveries to prevent 3-4 permanent Erb’s Palsies. While this is a low number when thinking about the large number of otherwise “unnecessary” Cesareans, to many parents even this low risk is intolerable. If the parents still want a Cesarean delivery after this discussion, I would do it.}

*Videos can be ordered at www.acog.org or the same video with a learning packet can be ordered from Pamela.Tilton@hitchcock.org.
ACOG Supports Rapid HIV Testing During Labor

The American College of Obstetricians and Gynecologists (ACOG) released a Committee Opinion recently recommending the use of rapid HIV testing for women in labor with an undocumented HIV status. This may reduce the number of neonates infected with HIV through mother-child transmission. This Committee Opinion is titled "Prenatal and Perinatal Human Immunodeficiency Virus Testing: Expanded Recommendations (#304)" and was published in the November 2004 issue of Obstetrics and Gynecology.

The new recommendations are supported by studies that show that the sooner a mother and infant receive antiretroviral drugs during or after labor, the less likely it is that the infant will become HIV-positive through vertical transmission in labor. It is recommended that if the mother has a positive rapid HIV test result, she should immediately receive antiretroviral prophylaxis, with consent. A confirmatory laboratory test should follow, but treatment should not wait for the result of this test.

This Committee Opinion also confirms ACOG’s support of the opt-out approach for prenatal HIV testing. This approach includes universal HIV testing with patient notification as a routine part of prenatal care.

A Perinatal HIV Packet can be obtained from ACOG at www.acog.org.

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**EFM Strip Teaser**

With Warren Crosby, M.D., Perinatologist, Department of OB/GYN, OUHSC

A 23 y/o woman, G4, P1113, at 38 weeks was admitted to L&D with SROM one hour earlier, clear fluid. Her first pregnancy ended with a C/S for preterm twins (low transverse incision), in her 2nd pregnancy she had a first trimester spontaneous AB, and a term VBAC with her 3rd pregnancy. The patient indicated a desire for another attempt at VBAC. Pitocin augmentation was begun at 0452 at 1 mu/min—SVE 3/C/-1. Pitocin was increased slowly to a max of 8 mu/min at 0730. It remained at 8 mu/min, until 0945, when it was decreased to 4 mu/min. She received 1mg Stadol at 0930 for pain. The patient was assisted to the bathroom at approx 0930 AM. Upon her return to bed, she complained of a “tearing sensation” in her lower abdomen and that she had received no relief from the Stadol. There had been a normal pattern from the onset of Pitocin until about 09:33, when repetitive decelerations down to 110 bpm began. The first panel begins at 09:40AM.

**Strip A**

The strip below follows the one above. At 10:02, the nurse’s notes indicate that the FHT could not be heard, and the spiral electrode was difficult to place at approximately 1005 because “the head was higher than earlier”. For both strips:

Describe the labor pattern.
Describe the fetal heart rate response.
Is this reassuring or nonreassuring?
What would you do at this point?

**Strip B**

The strip below follows the one above. At 10:02, the nurse’s notes indicate that the FHT could not be heard, and the spiral electrode was difficult to place at approximately 1005 because “the head was higher than earlier”. For both strips:

Describe the labor pattern.
Describe the fetal heart rate response.
Is this reassuring or nonreassuring?
What would you do at this point?
**EFM Strip Teaser—Comments**

In the first strip, two contractions traced that are approximately 3 minutes apart, lasting 20-30 seconds. There are no further contractions that traced on the strips. The FHR in Strip A has a baseline of approximately 145-150, decreased variability, and persistent decelerations that are variable in shape and late in timing. The decelerations on both strips appear to be periodic indicating that perhaps contractions are present but are not tracing on the strip. Strip B shows two decelerations that are shaped like lates, but, again, there is no uterine activity tracing. The last deceleration is prolonged lasting 2 minutes with a nadir of 90 bpm. Both strips are nonreassuring, especially considering the patient’s history of a previous C/S and the clinical findings. Appropriate actions would be to notify the physician to request his/her presence, discontinue the Pitocin, place O2 at 8-10L/min via face mask, increase IV fluids, and palpate the patient’s abdomen to assess the uterine activity, abdominal pain and the contour of her abdomen. The patient’s complaint of a “tearing sensation” should be further assessed by checking her V/S, and performing an SVE to assess for vaginal bleeding and a rising station, as was the case here.

**Outcome:** The patient had an emergency C/S at 1027 followed by a hysterectomy for uterine rupture. The baby was found to be extruded into the abdomen, along with part of placenta. Apgars 1/4/5. The child is now about 3 1/2 years old, and has severe long-term neurological problems.

**Discussion:** Since this patient had experienced a successful VBAC, it is assumed that the doctor felt that VBAC was safe in this patient. Pitocin was used to augment a sluggish labor after SROM, and the current ACOG Practice Bulletin at the time of the case (2000), #5 titled “Vaginal Birth After Previous Cesarean Delivery”, states that “meta-analysis found no relationship between the use of oxytocin and rupture of the uterine scar”. The most recent ACOG Practice Bulletin #54 (July, 2004) changes that statement to add...“in a recent study of 1,072 patients receiving oxytocin augmentation, the rate of uterine rupture was 1% compared with 0.4% in those who labored spontaneously”. Within the same Practice Bulletin # 54, there is a statement referring to VBAC patients receiving oxytocin which states, “Reported uterine rupture rates vary widely in the early studies (0.4-8%) , which may reflect the inadvertent inclusion of asymptomatic scar dehiscence among cases of catastrophic uterine rupture.” Recently, though, the Physicians Liability Insurance Company (PLICO), the major insurer of physicians in Oklahoma, has informed those they insure that the company will no longer insure against lawsuits involving VBAC.

In a previous newsletter discussing VBAC (November, 2003), I stated that because uterine rupture is a known complication of VBAC, VBAC attempts should be should be confined to those hospitals in which there will be the full time (at least for the VBAC in labor) availability of an anesthetist and an obstetrician or general surgeon with experience with cesarean hysterectomy. I think this is still good advice.